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"*To the solid ground*
Of Nature trusts the mind which builds for aye."—WORDSWORTH.

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SEA FISHERIES.

Sea Fisheries: their Treasures and Toilers. By Prof. Marcel A. Hérubel. Translated by Bernard Miall. Pp. 366. (London: T. Fisher Unwin, 1912.) Price 10*s.* 6*d.* net.

"THE English have long understood that the men of the seaboard are not foreigners, but of the same nation as the men of the cities, the mines, and the fields." So writes Prof. Hérubel in the very complimentary preface to this English edition of his "Pêches Maritimes d'aujourd'hui et d'autrefois." He flatters us somewhat. The heroism, the picturesqueness, and the more striking hardships of fishing, these are pretty well known; but there is little enough knowledge of the working, as opposed to the spectacular, conditions of fishing, and of the fisheries as a trade and an employment. Fishing, to most people, is the special affair of someone else. Nor has the large amount of scientific research into fishery problems been adequately popularised. It has presented, as it were, no report to and for the general public. There is no good bridge between the highly technical Journal of the Marine Biological Association and learned monographs and trade periodicals on the one side, and unsystematic picture-books about fish and fishing on the other. Sharp controversies affecting the livelihood of more than a hundred thousand sea-going fishermen, who land yearly over ten millions' worth of fish, rouse next to no widespread interest, mainly for the reason that so few people know enough about fishing to hold an opinion.

The description given of a companion volume in the "Bibliothèque des Amis de la Marine" applies well to Prof. Hérubel's "Sea Fisheries": —"C'est une œuvre d'intelligente et agréable vulgarisation." It is a work, too, which was as needed in England as in France, and although the author wrote primarily of the French fisheries for his fellow-countrymen, he has so much to say about the English industry, and fishing in any case is so international, that he has produced what is certainly the best book up to the present for giving English readers some precise understanding of their own great fisheries. (But not their small fisheries; his remarks on the French small fishermen, merely transferred to England, are very misleading.) Without undue technicality—and it is so much easier to be technical on technical subjects—he is exceedingly systematic and comprehensive. Starting with the oceanography of the North Atlantic and with a brief survey of fish biology, he works out in some detail the cycle of oceanic life from non-living matter through plankton upwards to food-fishes, and arrives at the conclusion that "fishing-grounds are *regions in unstable equilibrium, when* [*where* in the French] *there is an encounter of two critical conditions,* one biological and the other oceanic"; or where, in other words, the oceanic conditions, such as meeting currents, with a consequent abundance of plankton, and contiguous breeding-grounds and nurseries, are favourable to fish-life, and where, in addition, the struggle to live amongst fish has a favourable issue for the edible species.

It so happens that these conditions are to be found together only where the sea is not too deep for fishing on the so-called continental plateaux. After considering the effect of fishing on the unstable equilibrium, Prof. Hérubel proceeds to lay down the law on fishery problems and regulations, and it may be said at once that his views on these

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subjects are far more questionable than the view which he presents of oceanic life and fishery operations.

In the second section of the book—and it is this which makes the work so unusually complete—he deals with the human side of the industry; with the fishermen as an integral part of it; with social life on the coast, the chief fishing ports, boats and gear, fishermen, profits, and distribution. Here his recommendations rest on a sounder basis. The scandalous toll taken by the middleman and the imperfections of transport cannot but strike any investigator in England no less than in France; nor can the fishing industry become really prosperous for the fishermen producers as well as for its horde of middlemen until its amazing abuses, its fluctuations and consequent gambling on the markets, are taken firmly in hand. All efforts to improve the fisheries must be more than futile so long as neither the fisherman nor the consumer stands to obtain any of the benefit.

It is a point insufficiently recognised by Prof. Hérubel. He has apparently been misled by the magnitude and the huge turnover, the confusing noise and hustle, of the English capitalistic steam fisheries; so much so, indeed, that he insists on his countrymen adopting their methods, though later on in the book he seems to admit that the more co-operative German and Danish methods are even better. "For one step taken by the French the English take fifty and the Germans a hundred." I do not observe (from his bibliography) that he has studied the 1904 report of the evidence given before the House of Lords Committee on the Sea Fisheries Bill. Had he done so, he could hardly have helped moderating his animus against small fishermen and his desire to suppress them altogether; for it was there conclusively shown that immature flat-fish do at certain ages and seasons congregate on the extra-territorial fishing grounds, and that the destruction of them inshore by all the small fishermen put together is an almost negligible factor compared with their wholesale destruction by the great steam fleets. It is impossible to avoid thinking that Prof. Hérubel's inordinate admiration for the steam fishing companies has led him to take sides with them, and to base his recommendations on the incomplete scientific hypotheses which happen to be favourable to their interests.

As soon, in fact, as incomplete scientific investigations are embodied in recommendations and regulations affecting the livelihoods of men, we meet with the question of fictitious accuracy in an acute form. An average, for instance, is not a substantive quantity, and is not used as such in scientific work; it is only valid for purposes of comparison with other averages similarly obtained. But when it is used in the framing of fishery regulations, its non-substantive character should be plainly realised, the more so since minor legislating bodies are always only too anxious to shelve their responsibilities on their scientific advisers.

Prof. Hérubel affirms that the flounder is adult (*i.e.* can reproduce itself) at $3\frac{1}{6}$ in., the sole at $5\frac{1}{10}$ in., the turbot at $5\frac{1}{2}$ in., &c. The average sole may be adult at $5\frac{1}{10}$ in.; but the average sole is a fiction; soles themselves are adult at somewhere about that size. Or to take a more striking example, Prof. Hérubel states that "400 Iceland herring will fill a barrel, while 800 Channel herring are required"; and that "the herring of one region never show themselves in another region—at all events, not in the form of shoals." Channel herrings do average somewhere between 700 and 800 to a barrel; but as a statement of fact, and not of average, Prof. Hérubel's figures are simply untrue; last winter I could scarcely pack $600\frac{1}{2}$ of Channel herrings into barrels which, this winter, were not properly filled with 900. (It may be worth while to state that a hundred of herrings in Channel ports is 120 fish, and on the barrels a hundred and a half is written $100\frac{1}{2}$.) Suppose, then, it were a question of forbidding fishermen to catch Channel herrings on account of their small average size. Obviously a regulation founded on the average figures would be as remote from actual fact as the much-advertised mean temperature of a certain seaside resort, where excessive heat in summer and withering east winds in the winter combine to produce an *average* temperature that would be delightful to live in if it ever existed there. In a like manner, by using averages and by exchanging terms which are not interchangeable, Prof. Hérubel arrives at the astonishing conclusion that the British fisherman "gains more than *twice as much* as the French fisherman." He does not, of course. He may catch more than twice the worth of fish, but very little of the excess is actually pocketed by himself.

Figures of fictitious accuracy, valid in scientific work, where they are compared one with the other, but not valid in their bearing on human life, are now so much in vogue—not only for framing fishery recommendations—that means should be taken more carefully to define what might be called their human validity. Had Prof. Hérubel done so, his "Sea Fisheries" would have been authoritative throughout instead of authoritative in its presentation, but extremely debatable in some of its recommendations, more especially as regards the small fisheries.

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